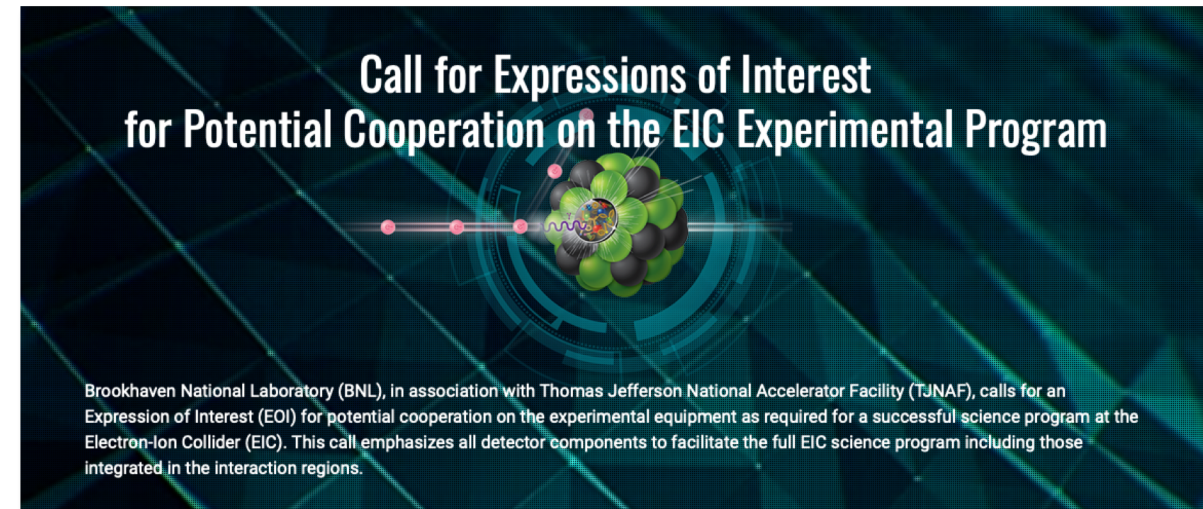
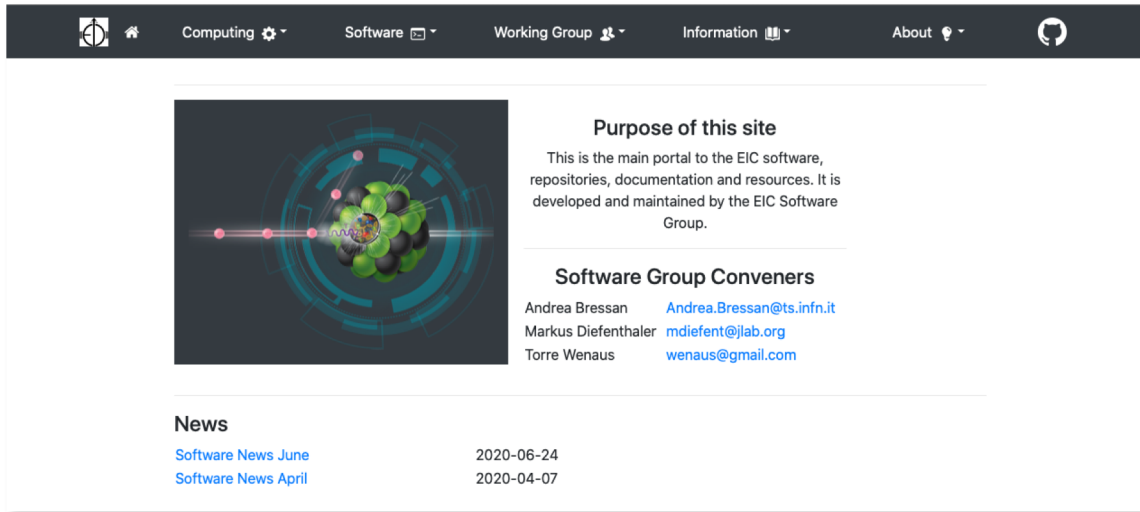


EIC Software update



Updates from the SWG

Expression of Interest for EIC Software

Andrea Bressan (Trieste), Markus Diefenthaler (JLAB), Torre Wenaus (BNL)

Role of the Software Working Group (SWG)

Develop

Support

Workflow environment for EIC simulations

- **to use** (tools, documentation, support) **and**
- **to grow with user input** (direction, documentation, tools)



Involvement from EICUG

- **Coordinate simulations** with DWG and PWG.
- Rely on expertise of EICUG:
 - **Detector design**
 - **Reconstruction algorithms**
 - **Physics analysis**

Recent focus: Get EICUG started on simulation tools

Full simulations

EicRoot

ESCalate

Fun4All

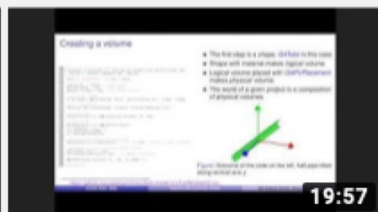
Fast simulations

eic-smear

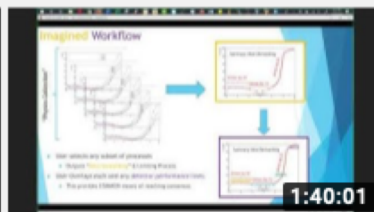
Online tutorials



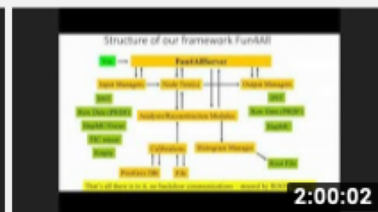
EIC Software Group: An Introduction (01/09/2020)



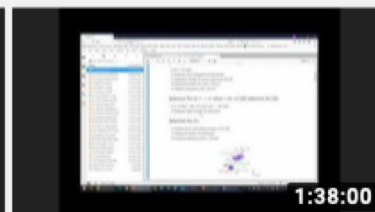
EIC Software Tutorial: Example Detector...



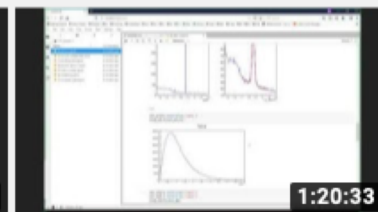
EICUG Software Working Group: Greenfield



EIC Software Tutorial: Detector Full Simulations in...

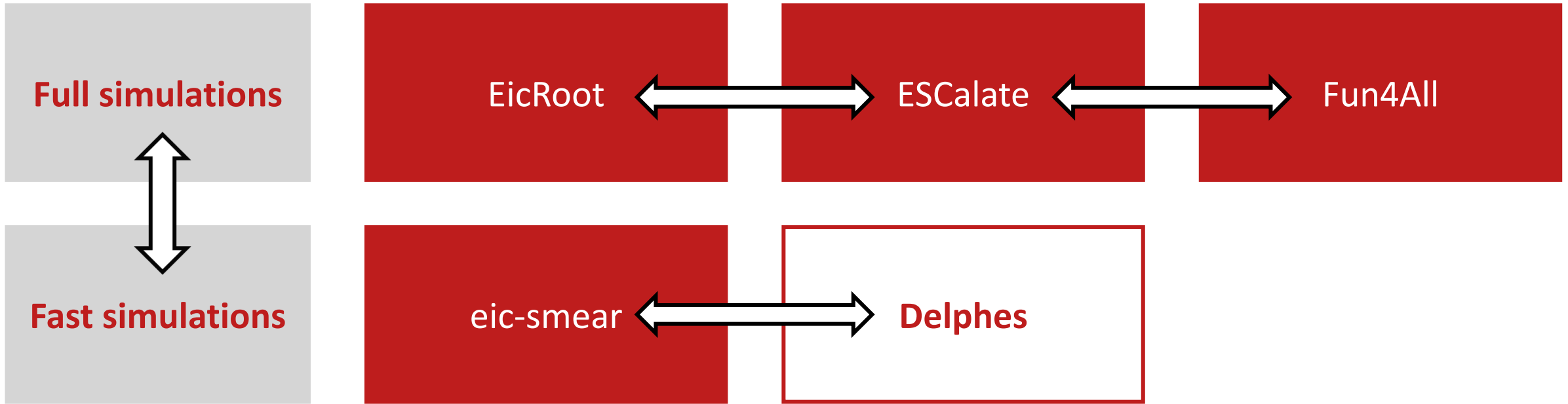


EIC Software Tutorial: Detector Full Simulations in...



EIC Software Tutorial: Fast Simulations (01/09/2020)

Current focus: Benchmarks & validation



Cross-tool validation ↔

- **Unified format** for the output ROOT tree of all tools (work in progress)
- Collect simulation configuration and physics analyses (work in progress)
 - Any study that is shared with the SWG can be used for **benchmark & validation**.
 - Based on analysis scripts and macros for the given study, the SWG can reproduce the results and build up a **validation scheme** on top of it.
- **Call for additional effort** (via Institutional Board)



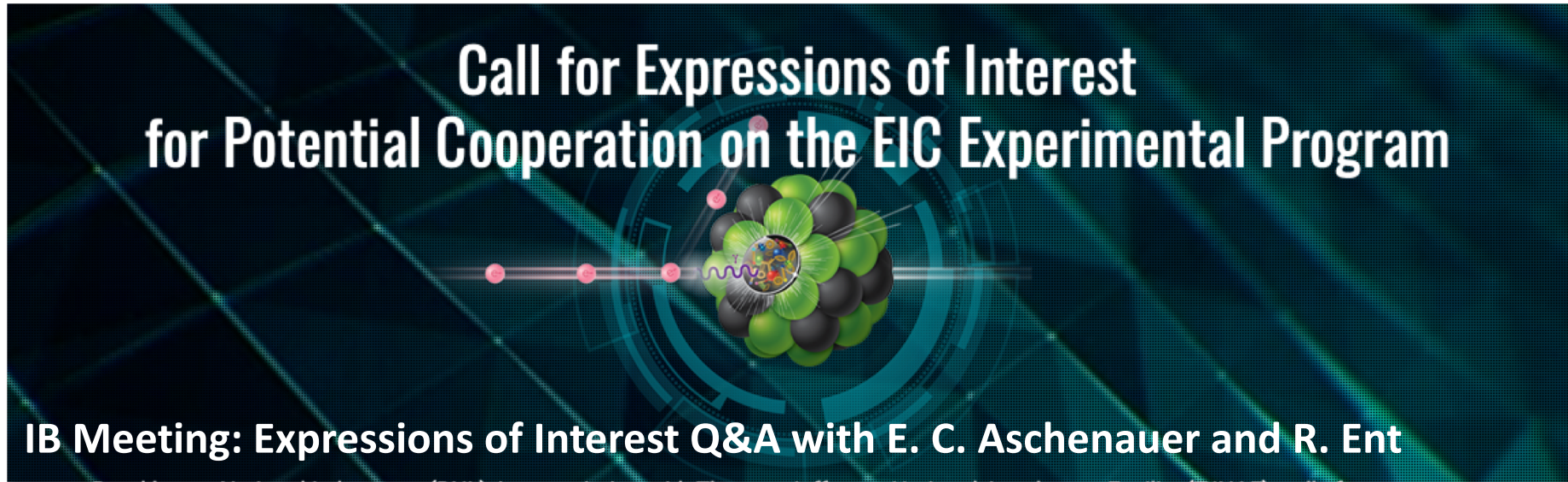
ELECTRON ION COLLIDER USER GROUP SOFTWARE NEWS

The Software Working Group is working on physics and detector simulations that enable a quantitative assessment of the measurement capabilities of the EIC detector(s) and their physics impact for the Yellow Report Initiative. The common simulation tools and workflow environment being set up by the working group allows the EICUG to pursue the Yellow Report studies in a manner that is accessible, consistent, and reproducible.

Table of contents

- [General Update](#)
 - [Communication](#)
 - [Detector Working Group: Detector Matrix Version 0.1](#)
 - [GitHub for the EICUG](#)
 - [Petrel: Worldwide data storage and sharing solution](#)
 - [Support us to support you better](#)
 - [Tutorials](#)
- [Software Update](#)
 - [EicRoot](#)
 - [eic-smear](#)
 - [ESCalate](#)
 - [Fun4All](#)

Expressions of Interest (EOI)



EOI FAQ: Can institutions submit more than one EOI?

Institutions may very well consist of different groups that have more than one interest. However, individual institutions should not submit more than one EOI, and that EOI should be all-inclusive. **Institutions may also join other groups and/or consortia in their EOI, with cross-referencing to the individual institution EOI.**

Consortium: Software

EIC collaborations will determine for themselves what they do for software, but that will likely include **common software**.

Expression of Interest for EIC Software

- All scientists of all levels, worldwide, should be enabled to actively participate in EIC simulations and analyses.
- To achieve this goal, we must develop simulation and analysis software using modern and advanced technologies while hiding that complexity (user-centered design).
- Input by the wider scientific and software communities is encouraged.

Project Greenfield: Community-wide effort leveraging everyone's experience

- define requirements for EIC Software
 - **Software components** Simulation, reconstruction, physics analyses, streaming readout, online monitoring etc.
- work together on common software projects based on these requirements
 - **Examples for common software** DD4hep, Geant4, ACTS, Gaudi, JANA2, ROOT, Jupyter
 - **Emerging technologies** Artificial Intelligence and Quantum Computing

Timeline for Expression of Interest for EIC Software

July 15

Announcement

Mid of August

Project Greenfield meeting: Join us to explore common software goals we can work together as a group.

Date Based on your availability **Time** 10:00 a.m. – 1:00 p.m. (EDT)

**September –
October**

Cooperatively edit Expression of Interest

November 1

Deadline for submission

Next steps

For questions or input: eicug-software-conveners@eicug.org

Add your availability on: <https://doodle.com/poll/wfzsfytfayayebfk>

Announcement of meeting: July 31